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EXHIBIT A

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are mirror images of each other and thus are not superposable. **2** either of the two crystalline forms exhibited by a pair of enantiomers. Use of the term to mean **enantiomer** is deprecated.

enantiomorphic *or* **enantiomorphous** of, or pertaining to, an **enantiomorph**: pertaining to the phenomenon of, or displaying **enantiomorphism**. The term is often used synonymously with **enantiomeric** (enantiomeric molecules frequently form enantiomorphic crystals).

enantiomorphism the phenomenon of being related as between an object and its nonsuperposable mirror image. The term is used especially in relation to enantiomorphic crystals.

enantiomorphous *see* **enantiomorphic**.

enantiotopic **1** when chemically-like ligands in constitutionally equivalent locations (generally the two *a* ligands in *Caabc*) are related by a centre or plane of symmetry, or by an alternating axis of symmetry (but not by a simple axis of symmetry), they are enantiotopic. The two ligands are in a stereochemically different, mirror-image environment. If each *a* ligand of *Caabc* is replaced separately by a different, achiral ligand, *d*, the products are the two enantiomers of *Cabcd*. Example: the methylene hydrogens of ethanol are enantiotopic: if ethanol is written as a Fischer projection structure with OH at the top, H–C–H in the middle, and CH_3 at the bottom, the left-hand hydrogen of the central methylene is H_S, while that at the right is H_R (*see* **pro-R/pro-S convention**). Replacement of ^1H_R by ^2H yields (+)-(*R*)-[1-$^2H_1$]ethanol and the same replacement of ^1H_S yields the enantiomer, (−)-(*S*)-[1-$^2H_1$]ethanol. In another important compound, citric acid, the two CH_2COOH groups are also enantiotopic. **2** the two faces of a double bond or of a planar cyclic ring system that are related by a symmetry plane but not by a C_2 axis (i.e., a two-fold axis of symmetry) are enantiotopic; the two faces show stereochemically different, mirror-image related environments. Separate addition of the same achiral reagent to the two faces (*see* **Re/Si convention**) gives enantiomeric products. Example: the simple addition of HCN to CH_3–CHO yields a racemic mixture of the (*R*) and (*S*) cyanohydrins, CH_3–CH(OH)–CN, with both faces of C=O being involved. The reduction of the C=O bond of CH_3–CHO to form ethanol by alcohol dehydrogenase requires addition of a hydride ion from NADH at the C atom and a hydron at the O atom. Thus, reduction of CH_3–CHO with NAD^{2}H at its *A* face (*see* **diastereotopic** (def. 2)) yields (*R*)-[1-$^2H_1$]ethanol and reduction of CH_3–C^{2}HO with *A*-NADH yields (*S*)-[1-$^2H_1$]ethanol. The enzymatic reduction is stereospecific and only one of the enantiotopic faces of C=O is attacked; it is the same one (the *Re* face) in both of these situations. *Compare* **diastereotopic**.

encapsidate to surround (a particle of viral nucleic acid) with a **capsid**. —**encapsidation** *n*.

encapsis the association of myofibrils into bundles and the further association of these bundles into larger bundles, etc.

encephalin *a variant spelling of* **enkephalin**.

encephalitis inflammation of the brain.

3′ end the end of a linear polynucleotide strand at which the 3′-hydroxyl group of the terminal nucleoside residue is normally not phosphorylated.

5′ end the end of a linear polynucleotide strand at which the 5′-hydroxyl group of the terminal nucleoside residue is normally phosphorylated.

end+ *a variant form of* **endo+** *(sometimes before a vowel)*.

end capping *(in chromatography)* the blocking of residual silanol groups on the surface of silica where these remain exposed after the bonding of C_{18} or other alkyl chains to the silica in the formation of reversed-phase stationary phases for column chromatography. For this purpose hydrocarbyl silanes (*see* **silane** (def. 3)) having small alkyl (usually methyl) groups are used so that they can penetrate between the main bonded-phase groups.

endemic present in or peculiar to a more or less localized area, e.g. an endemic disease. *Compare* **enzootic**.

endergonic describing a process or reaction on which work must be done, i.e. one requiring an energy input, for it to take place. At constant pressure and temperature the free energy content of such a system increases. *Compare* **exergonic**. [From **endo+** plus Greek *ergon*, work.]

end group any residue at an extremity of a branched or linear macromolecule.

end-group analysis determination of both the nature and the number of terminal groups in a macromolecule, e.g. in proteins, the N- and C-terminal amino-acid residues; in polynucleotides, the 3′- and 5′-terminal nucleotide residues.

endo+ *or (sometimes before a vowel)* **end+** *comb. form* meaning within, inner, absorbing, containing. *Compare* **exo+**. *See also* **intra+**.

endo- *prefix (in chemical nomenclature)* denoting insertion (of the additional constituent(s) specified) into the structure of (a named compound); e.g. endo-4a-glycine-[5-leucine]enkephalin; endo-Gly^{4a}-[Leu^5]enkephalin; Tyr-Gly-Gly-Phe-Gly-Leu; a synthetic polypeptide in which a glycine residue has been inserted between residues 4 and 5 of [5-leucine]enkephalin.

endo- *prefix (in stereochemistry)*. *See* **conformation**.

endoamylase any **amylase** that hydrolyses nonterminal glycosidic linkages; it is a subcategory of **endoglycosidase**.

endocrine **1** describing or relating to any gland or other group of cells that synthesizes **hormones** and secretes them directly into the blood, lymph, or other intercellular fluid. **2** describing or relating to a secretion of endocrine tissue. **3** a secretory product of endocrine tissue; a hormone. Originally known as **internal secretion**. *Compare* **exocrine**.

endocrine gland *or* **ductless gland** any of the ductless glandular structures that secrete (one or more) hormones directly into the bloodstream.

endocrinology the science concerned with the endocrine organs, their products, and the effects of these products. —**endocrinological** *adj*.

endocytic **1** situated within a living cell but not belonging to the cell itself; intracellular. **2** *an alternative term for* endocytotic (*see* **endocytosis**).

endocytosis the uptake of external materials by cells through the mechanism of **phagocytosis** or **pinocytosis**. The term is often used interchangeably with pinocytosis. *Compare* **exocytosis**, **transcytosis**. *See also* **internalize**, **viropexis**. —**endocytic** *or* **endocytotic** *adj*.; —**endocytose** *vb*.

endocytotic vesicle *see* **pinocytotic vesicle**.

endodeoxyribonuclease *see* **deoxyribonuclease**.

endoenzyme **1** any intracellular enzyme. *Compare* **ectoenzyme**, **exoenzyme** (def. 1). **2** any enzyme that catalyses **endohydrolysis**. It may be an **endoglycosidase**, an **endonuclease**, or an **endopeptidase**. *Compare* **exoenzyme** (def. 2).

endogenous arising or developing within an organism, tissue, or cell, and excluding any consequences of externally added agents or materials. —**endogenously** *adv*.

endoglin a major glycoprotein of vascular endothelium that may be important in the binding of endothelial cells to integrins. It forms a heteromeric complex with the signalling receptors for transforming growth factor β (TGF-β). It has an **RGD** integrin-recognition motif and is a homodimer of disulfide-linked subunits. Example (precursor) from *Sus scrofa*: database code EGLN_PIG, 653 amino acids (70.20 kDa).

endoglycosidase any enzyme within subclass EC 3.2, glycosidases, that hydrolyses nonterminal glycosidic linkages in oligo- or polysaccharides. Many activities of this type are known, e.g. from *Flavobacterium meningosepticum*.

endohormone any hormone acting within the individual organism that produces it. *Compare* **ectohormone**.

endohydrolysis the hydrolysis, esp. by an **endoenzyme**, of any linkage between residues in a biopolymer. For example, **endopeptidases** attack neither the C-terminal nor the N-terminal peptide linkages of an oligo- or polypeptide, and **endoglycosidases** attack the terminal glycosidic linkages at either the reducing or nonreducing end of an oligo- or polysaccharide.